

III. *Extinct Mammalia from Madagascar*.—I. *Megaladapis insignis*, *sp. n.*

By C. I. FORSYTH MAJOR, *M.D., F.Z.S.*

Communicated by HENRY WOODWARD, *LL.D., F.R.S., Pres. Pal. S.*

Received February 28,—Read April 5, 1900.

[PLATE 6.]

UNDER the above general title I propose to give a detailed systematic description of some remains of sub-fossil Malagasy Mammalia, partly collected by myself, and partly acquired by the Geological Department of the British Museum before and after my journey. They include evidence of Primates, Carnivora, Chiroptera, Insectivora, and Rodentia.

The present paper deals with a small number of teeth, preserved in several fragments of the upper and lower jaw, apparently of a single specimen of a new species of *Megaladapis* (*M. insignis*, *sp. n.*). The main interest of these remains, which are unfortunately scanty, consists in the remarkably perfect condition of nearly all the teeth, and in their revealing a truly gigantic form of Lemuroid. From the close agreement in the pattern of the teeth with those of *Megaladapis madagascariensis* formerly described,* it is presumed that the skull of the new species was also very similar to that of the latter.†

Of upper true molars, the two posterior, m. 3, m. 2, of the left, and the last, m. 3, of the right side, are preserved, all in a beautiful state, which allows of a somewhat more detailed description than in the case of *Megaladapis madagascariensis*. The main feature of these upper molars is three cusps, two outer, "4," "5," and an inner one, "6." The anterior of the former two projects outwards and inwards from the outer wall, while the posterior does not project at all outwards, but extends more inwards than the anterior cusp. The antero-external angle of both teeth is occupied

* C. I. FORSYTH MAJOR, "On *Megaladapis madagascariensis*, an Extinct Gigantic Lemuroid from Madagascar," 'Roy. Soc. London Proc.,' vol. 54, pp. 176-179 (1893); 'Phil. Trans. Roy. Soc. London,' B, vol. 185, pp. 15-38 (1894); *Id.*, "On the Brains of Two Sub-fossil Malagasy Lemuroids," 'Roy. Soc. London Proc.,' vol. 62, pp. 46-50 (1897).

† A model to scale of *M. insignis*, based upon the skull and lower jaw of *M. madagascariensis*, was exhibited. The scale is that of the actual teeth of *M. insignis*, the restored parts upon the skull and lower jaw of an existing species of lemur.

by a minor cusp, "1," "parastyle," separated from cusp "4" by a folding of the enamel. From cusp "1" an outer basal cingulum takes origin, which in m. 2 is very strong and borders the whole of the outer base of the tooth; in m. 3 it is much less developed in the anterior moiety of the tooth. On the middle of the outer side of both molars the cingulum swells into a cusp, "2" (OSBORN's *mesostyle*), which, however, does not reach the level of the triturating surface.

The single cusp, "6," on the inner side of the two teeth, has the shape of a crescent; its anterior horn forms the antero-internal border of the crown, and joins outwards a ridge which from cusp "1" runs inwards, thus forming the external part of the anterior border. The posterior horn of cusp "6" is joined by a crest running from the postero-external cusp "5." A strong basal cingulum occupies the posterior side of both teeth, and extends as well on part of the inner. There is likewise a cingulum of limited extent at the base of the antero-internal angle of both teeth.

Each of the three main cusps is supported by a root, the inner one being the strongest, and double the length (horizontally) of each of the outer roots.

Among recent Lemuroidea, the upper molars of the Malagasy genus *Lepidolemur* come very close in shape to those of the fossil, the main differences being the following. The outer border of the crown-surface in the molars of *Lepidolemur* forms nearly a straight line, almost parallel with the long axis of the skull, and their outer side is slightly concave inwards. A weak outer basal cingulum is present, but no trace of cusp "2," and the antero-external cusp "1" is scarcely accentuated. The antero-internal cingulum also is missing in the molars of *Lepidolemur*. Whereas in *Megaladapis* m. 2 is the largest of the true molars, it is the smallest in *Lepidolemur*.

Upper Premolars.—The two posterior premolars, p. 1 and p. 2, like the molars, are both provided with three roots, a single stout one internally, and two smaller on the outer side. They both exhibit one principal outer cusp and an antero-external basal cusp; in an unworn condition a postero-external cusp probably is present. The two teeth present the following differences from each other. The posterior premolar, p. 1, is stouter and broader (*i.e.*, more extended transversely); its contour is approximately quadrangular, whereas p. 2 is triangular with the apex on the inner side. P. 1 exhibits a strong crescentic internal cone, placed obliquely; the posterior margin of the tooth is raised into a ridge. Basal cingula are visible on the antero-external, antero-internal, and postero-external angles, the former two rather indistinct.

The internal cone of p. 2 is weak, but bicuspid, the two small cusps being situated on an oblique line.

The anterior premolar, p. 3, is a unicuspidate, caniniform tooth, with slightly recurved tip, which overtops the posterior premolars. It is provided with a weak anterior basal cusp; its posterior part is strongly worn by the action of the lower premolar, so that the dentine is laid bare to a considerable extent. This tooth has

only one compressed root, which, however, is indistinctly partitioned on the external side by a groove. In the skull of *Megaladapis madagascariensis* the alveolus of the anterior premolar is preserved on the right side, exhibiting two sockets.*

In the fossil under consideration there is a diastema 17 millims. in length between the anterior premolar and the canine. The enamel-clad portion of the latter is broken off; the section exhibited shows the tooth to be somewhat laterally compressed, and to have been apparently provided with a posterior basal cusp. The internal view of the jaw-fragment shows the fang of the canine strongly curved backward.

Last Lower Molar.—A last posterior molar, m. 3, is preserved in a fragment of the right ramus of the lower jaw. Its pattern is absolutely identical with the corresponding tooth of *M. madagascariensis*, the main feature being two pairs of cusps obliquely situated, the internal ones directed slightly backwards, and a very strong posterior talon placed in the middle line. The rather low postero-internal cusp is connected by a small ridge with the crescentic postero-external cusp. The antero-internal cusp, the highest of all, shows an indication of a secondary cusp on its postero-internal slope; it joins the antero-external cusp by means of a short transverse ridge. A small anterior valley opens inwards; but there is no distinctly developed "paraconid." The outer margin of the tooth exhibits a basal cingulum, partitioned into a larger anterior and a smaller posterior portion. The tooth is provided with two roots, which are exposed on the inner side; the posterior one is very much lengthened horizontally, and shows a vertical outer and inner groove.

The corresponding tooth of *Lepidolemur* differs from the one described by having no isolated postero-internal cusp.

Measurements in Millimetres.

		<i>Megaladapis madagascariensis.</i>	<i>M. insignis</i>
Length of upper	p. 1	10·	12·
"	" p. 2	10·3	13·
"	" p. 3	—	13·2
"	" m. 1	13·5	—
"	" m. 2	17·–18·	24·8
"	" m. 3	17·8–18·5	27·5
Breadth of	" m. 1	12·7	—
"	" m. 2	15·8	21·
"	" m. 3	14·6–15·5	24·5
Length of lower	m. 3	23·5	39·
Greatest breadth of lower	m. 3 .	—	17·

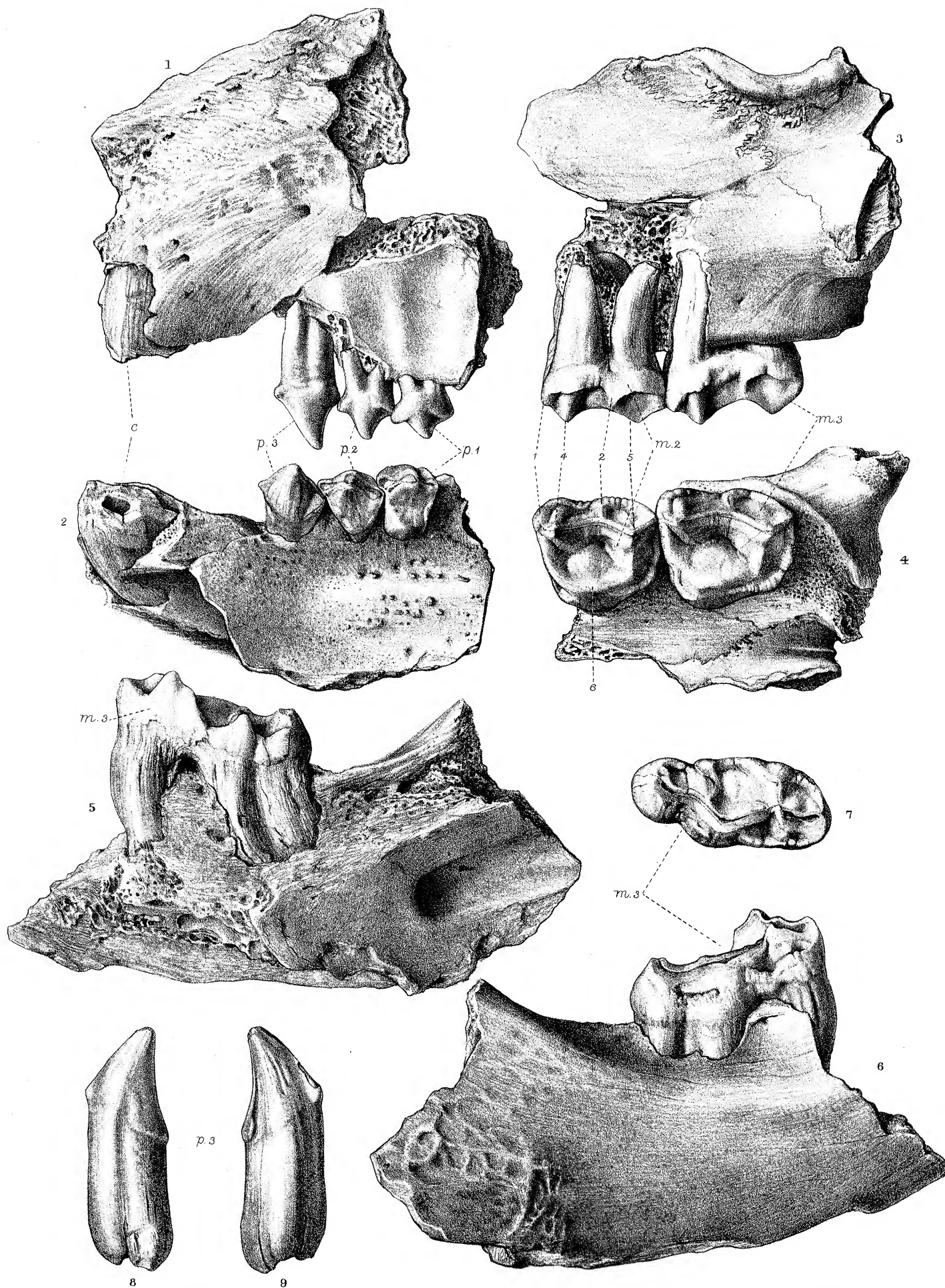
* *Op. cit.*, plate 7, fig. 8.

The approximate length of the skull of *Megaladapis madagascariensis* is 250 millims. The size of the teeth in the new species leads to the conclusion that it was at least one-third larger than the former, thus giving the approximate length of 330 millims. for the skull of *Megaladapis insignis*.

EXPLANATION OF PLATE 6.

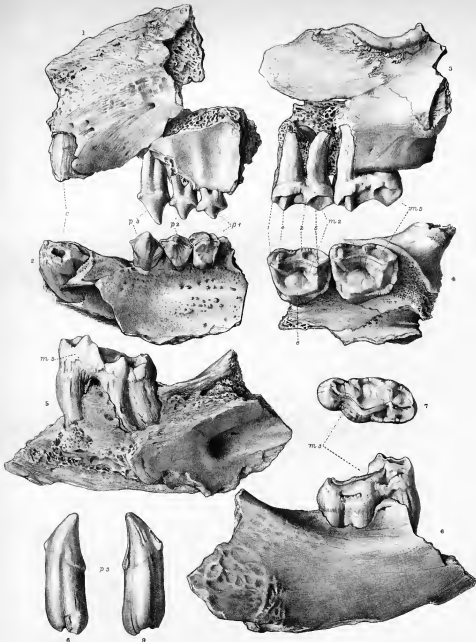
(All Figures natural size.)

- Fig. 1. Anterior portion of left maxilla, showing the three premolars and base of the canine. Outer view.
- Fig. 2. The same ; palatal view.
- Fig. 3. Posterior portion of left maxilla, showing the two posterior true molars. Outer view.
- Fig. 4. The same ; palatal view.
- Fig. 5. Fragment of right mandibular ramus, with last molar. Inner view.
- Fig. 6. The same ; outer view.
- Fig. 7. Upper view of last molar.
- Fig. 8. Anterior lower premolar. Outer view.
- Fig. 9. The same ; inner view.



G.M. Woodward del. et lith.

West, Newman imp.



MEGALADAPIS INSIGNIS, *sp. nov.*

EXPLANATION OF PLATE 6.

(All Figures natural size.)

- Fig. 1. Anterior portion of left maxilla, showing the three premolars and base of the canine. Outer view.
 Fig. 2. The same; palatal view.
 Fig. 3. Posterior portion of left maxilla, showing the two posterior true molars. Outer view.
 Fig. 4. The same; palatal view.
 Fig. 5. Fragment of right mandibular ramus, with last molar. Inner view.
 Fig. 6. The same; outer view.
 Fig. 7. Upper view of last molar.
 Fig. 8. Anterior lower premolar. Outer view.
 Fig. 9. The same; inner view.